

# DEVISER®



## Optical Spectrum Analyzer



[www.deviserinstruments.com](http://www.deviserinstruments.com)

## About Deviser photoelectric

Deviser photoelectric is one of the leading manufacturers specializing in test and measurement equipment for the optical communication industry. Building on 35 years of innovation, Deviser's test and measurement equipment is renowned for its accuracy, reliability, and ease of use. We offer a wide range of innovative optical test and measurement solutions that accelerate the progress of next-generation intelligent optical networks. Our aim is to shorten time-to-market and reduce cost-of-test for customers in R&D and manufacturing while enabling new technologies such as innovative optical components, network elements and systems, and all-optical fiber networks. Collaborating with leading optical chipset and transceiver developers and manufacturers, we provide competitive test solutions that offer significant advantages.

At Deviser, we are dedicated to exploring the boundless possibilities of photonics, developing cutting-edge test and measurement solutions, and driving advancements in digital transformation, AI, cloud computing, 5G communication, and more.

We are dedicated Optical Communication Measurement specialists with extensive experience and in-depth knowledge.

# 35+

Years of Innovations

# 300+

employees and customers  
in 100 countries

# 247,000 ft<sup>2</sup>

R&D and  
Manufacturing facilities

A comprehensive Photonics Test and Measurement solution  
powered by DEVISER



Optical Spectrum  
Analyzer



Tunable/Stable Laser  
Source



Optical Wavelength  
Swept Test System



Multifunction  
Modular Platform

# AE8600/AE8700/AE88XX Series Optical Spectrum Analyzer

## Key Features

### AE8600 Series OSA

- Wavelength range from 600 to 1700nm, applicable for both single-mode and multi-mode fibers
- 7 wavelength resolution settings from 20 pm to 2 nm, enable the user to select the most suitable value based on the characteristics of the DUT
- -90dBm lowest optical level sensitivity
- High close-in dynamic range: 75dB to 78dB typ.
- High wavelength accuracy  $\pm 0.01$  nm to  $\pm 0.02$  nm, built-in calibration light source
- Ultrahigh scanning speed up to 0.2-0.3s (Sensitivity: MID, span:30nm, resolution: 0.1 nm, sampling: 501,2x)



### AE8700 OSA

- High wavelength resolution  $< 10$  pm
- Free space optical input, applicable for both single-mode and multi-mode fibers
- -85dBm lowest optical level sensitivity
- High typical close-in dynamic range of 80dB, allows for clear separation and accurate measurement of signals in close proximity
- High wavelength accuracy  $\pm 0.005$  nm, built-in calibration light source

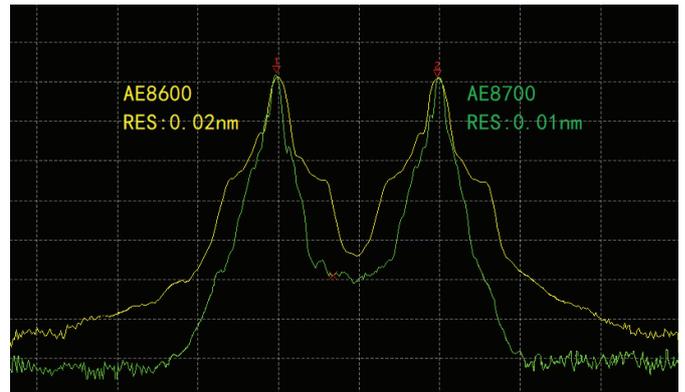
### AE8800 Series OSA

#### AE8805

- Wavelength Range: 350 to 1100 nm
- Wavelength resolution settings: 0.02nm to 10 nm
- Wide measurable level range: -80 dBm to +20 dBm
- Wavelength accuracy:  $\pm 0.05$  nm
- Close-in dynamic range: 65 dB

#### AE8807

- Wavelength Range: 1200 to 2500 nm
- Wavelength resolution settings: 0.05 nm to 2 nm
- Wide measurable level range: -67 dBm to +20 dBm
- Wavelength accuracy:  $\pm 0.05$  nm
- Close-in dynamic range: 55 dB



Comparison of AE8700 series and AE8600 series spectral characteristics

## Overview

Brought to you by Deviser photoelectric, the AE86XX/AE87XX/AE88XX Series is a high-precision diffraction-grating optical spectrum analyzer covering the full wavelength range. It offers market-leading performance including wavelength scanning range, dynamic range, spectral resolution, power sensitivity, and scanning speed.

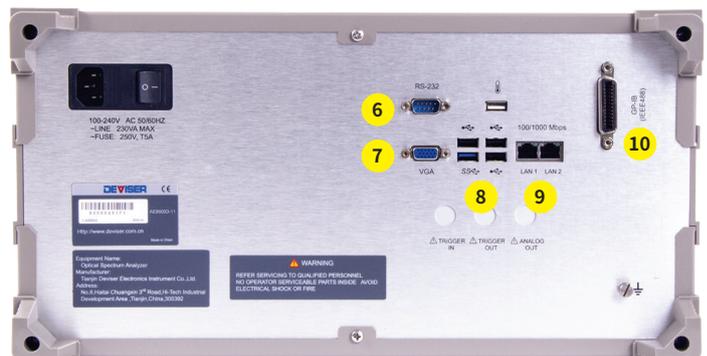
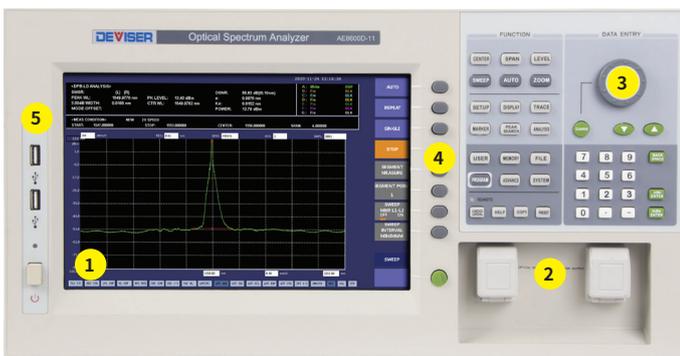
The AE8600 Series OSA provides a high-resolution wavelength range from 600nm to 1700nm. It offers a comprehensive suite of analysis functions including DFB, FP, LED, POWER, WDM, and EDFA. AE8600 Series OSA offers exceptional stability and reliability, ultra-high-speed spectral sweeping, and versatile methods for exporting and analyzing measurement data. These features enable users to effectively address a wide range of challenges in visible and near-infrared spectral testing.

The AE8700 OSA is the highest-performance optical spectrum analyzer with a wavelength range from 800 nm to 1650 nm. Its free-space optical input design ensures optimal coupling efficiency, superior measurement repeatability, and maintenance-free operation. The AE8700 OSA achieves a wavelength resolution of 10 pm, supports a maximum measurement power of +20 dBm, and offers level sensitivity settings down to -85 dBm.

The AE8800 Series OSA provides high-speed and accurate analysis of wavelengths from 350 nm to 1100 nm and a long-wavelength range from 1200 nm to 2500 nm. These two high-performance OSA models are capable of conducting high-speed and precise analysis across the ultraviolet, visible, near-infrared, and mid-infrared spectrums. They effectively cater to testing requirements in various fields, including lasers, passive devices, material composition analysis, and medical/biology applications.

## A wealth of functions and connection interfaces

- |  |                |          |        |                     |
|--|----------------|----------|--------|---------------------|
| 1. 10.1 inch TFT LCD touchscreen                 | 3. Rotary knob | 5. USB   | 7. VGA | 9. Ethernet         |
| 2. Optical Input(Left)/Calibration Output(Right) | 4. USER button | 6. RS232 | 8. USB | 10. GB-IB(Optional) |



• The ports and functions described above are based on the AE8600D-11. There are some differences between different models. Please see the specifications for details.

## Functions

Item	Function
<b>Measurement</b>	
Sweep mode	Repeat sweep, single sweep, AUTO (automatically sets measuring condition) , sweep between marker, data logging
Condition Setting	Center wavelength, span, wavelength sampling points, wavelength resolution, measurement sensitivity, double-speed measurement mode, smoothing, APC level correction
Others	Sweep status output, analog output, Trigger
<b>Display</b>	
Vertical scale	Level scale (0.1 to 10dB/div., linear) , level subscale (0.1 to 10dB/div., linear) , reference level display, DIV display (8, 10 or 12) , power density (dB/nm), dB/km, %, noise mask
Horizontal scale	wavelength (nm), frequency(THz), zoom
Display mode & items	Single waveform display, split screen display, data table display, label display, template display, measurement condition display

<b>Trace</b>	
Trace functions	Simultaneous display of 7 independent traces, max/min value detection display, calculation between traces display, normalized display, curve fit display, peak curve fit display, marker curve fit display, roll averaging (2 to 100 times)
Others	Trace copy /trace clear, Write/Fix setting, show / hide setting
<b>Marker &amp; Search</b>	
Marker	Delta marker(Max.1024), vertical / horizontal line markers, advanced marker
Search	Peak search, bottom search, auto search (On/OFF), search between vertical axis line marker, search within zoom area
<b>Data analysis</b>	
Analysis functions	Spectral width analysis (thresh, envelope, RMS, peak-RMS, notch) , WDM (OSNR) analysis, EDFA-NF analysis, filter peak/bottom analysis, WDM filter peak/bottom analysis, DFB-LD/FP-LD/LED analysis, SMSR analysis, power analysis, PMD analysis, MULT DFB analysis
Others	Auto analysis execution setting(ON/OFF), analysis between vertical axis line markers, analysis within the zoom area
<b>Other functions</b>	
Alignment	Auto alignment using built-in calibration light source.
Viewer	A software that installed on PC to support remote.

## Specifications

Model	AE8600D-01	AE8600D-11	AE8600D-22	AE8700	AE8805	AE8807
<b>Optical Spectrum Measurement Specifications</b>						
Applicable fiber	SM(9.5/125μm), MMF(50/125μm, 62.5/125μm), Large core: up to 400 μm					
Wavelength range <sup>1</sup>	600 to 1700nm		800 to 1650nm		350 to 1100nm	1200 to 2500nm
Wavelength resolution bandwidth	0.02nm to 2nm		0.01 to 1nm		0.02 to 10nm	0.05 to 2nm
Wavelength resolution setting <sup>1,2</sup>	0.02nm, 0.05nm, 0.1nm, 0.2nm, 0.5nm, 1nm, 2nm		0.01nm, 0.02nm, 0.05nm, 0.1nm, 0.2nm, 0.5nm, 1nm		0.02nm, 0.05nm, 0.1nm, 0.5nm, 1nm, 2nm, 5nm, 10nm	0.05nm, 0.1nm, 0.2nm, 0.5nm, 1nm, 2nm
Wavelength accuracy <sup>1,2,5</sup>	1520 to 1620 nm ±0.02 nm 1450 to 1520 nm ±0.04 nm entire wavelength range ±0.1 nm	1520 to 1620 nm ±0.015 nm 1450 to 1520 nm ±0.025 nm entire wavelength range ±0.1 nm	1520 to 1620 nm ±0.01 nm 1450 to 1520 nm ±0.02 nm entire wavelength range ±0.08 nm	1520 to 1620 nm ±0.005 nm 1450 to 1520 nm ±0.02 nm Entire wavelength range ±0.05 nm	±0.05nm (633nm) ±0.2nm (400 to 1100nm) (After wavelength calibration with 633 nm He-Ne laser)	±0.05nm (1520 to 1580nm) ±0.1nm (1580-1620nm) entire wavelength range ±0.5nm
Wavelength repeatability <sup>1,2</sup>	±0.01 nm (1 min.)		±0.004 nm (1 min.)		±0.015 nm (1 min.)	±0.015 nm (1 min.)
Wavelength linearity <sup>1,2,5</sup>	±0.02 nm (1520 to 1580 nm) ±0.04 nm (1450 to 1520 nm, 1580 to 1620 nm)	±0.015 nm (1520 to 1580 nm) ±0.025 nm (1450 to 1520 nm, 1580 to 1620 nm)	±0.01 nm (1520 to 1580 nm) ±0.02 nm (1450 to 1520 nm, 1580 to 1620 nm)	±0.008 nm (1520 to 1580 nm) ±0.015 nm (1450 to 1520 nm, 1580 to 1620 nm)	—————	
Min. sampling resolution <sup>1</sup>	0.001nm					

Model	AE8600D-01	AE8600D-11	AE8600D-22	AE8700	AE8805	AE8807
<b>Optical Power Measurement Specifications</b>						
Level sensitivity <sup>2,3,4,7</sup>	-90dBm(1300 to 1620nm,resolution ≥0.05nm,sensitivity:HIGH3) -85dbm(1000 to 1300nm,resolution ≥0.05nm,sensitivity:HIGH3) -55dBm(600 to 1000nm,resolution ≥0.05nm,sensitivity:HIGH3)			-85dBm(1300 to 1620nm, resolution ≥ 0.05nm) -80dBm(1000 to 1300nm, resolution ≥ 0.05nm) -55dBm(800 to 1000nm, resolution ≥ 0.05nm)	-80dBm (500 to 1000nm) -60dBm (400 to 500nm, 1000 to 1100nm) (Resolution ≥ 0.2nm, averaging: 10 times, sensitivity: HIGH3)	-67dBm (1800 to 2200nm) -60dBm (1500 to 1800nm, 2200 to 2400nm) -55dBm(1300 to 1500nm) sensitivity: HIGH3
Maximum input power <sup>2,3</sup>	+20dBm(Per channel, full range)			+20dBm	+20dBm (550 to 1100nm) +10 dBm (400 to 550 nm) (total input power)	+20dBm (total input power)
Level accuracy <sup>2,3,4,6</sup>	±0.4dB(1310/1550nm, input level: -20dBm)	±0.3dB (1310/1550nm, input level: -20dBm)	±0.25dB (1310/1550nm, input level: -20dBm)	±0.2dB (1310/1550nm, input level: -20dBm)	±1.0 dB (850 nm, input level: -20 dBm, Resolution: ≥0.2nm, sensitivity: MID, HIGH1-3)	±1.0 dB (1550 nm, input level: -20 dBm, sensitivity: MID,HIGH1-3)
Level linearity <sup>2,3</sup>	±0.1dB(input level: -50 to +10dBm, sensitivity: HIGH1/HIGH2/HIGH3)	±0.08dB(input level: -50 to +10dBm, sensitivity: HIGH1/HIGH2/HIGH3)	±0.06dB(input level: -50 to +10dBm, sensitivity: HIGH1/HIGH2/HIGH3)	±0.05dB(input level: -50 to +10dBm)	±0.2 dB (input level: -40 to 0dBm, sensitivity: HIGH1-3)	±0.05dB (input level:-30 to +10dBm, sensitivity: HIGH1-3)
Wavelength sampling points	101 to 50001, AUTO					
Optical return loss <sup>11</sup>	>35dB (with APC connector)					
Polarization dependence <sup>2,3,6</sup>	±0.1dB (@1550nm)	±0.08dB (@1550nm)	±0.05dB (@1550nm)	±0.05dB (@1550nm)	_____	
Dynamic range <sup>1,2,8</sup>	Peak ±0.1nm 39dB(resolution: 0.02nm) Peak ±0.4nm 60dB(resolution: 0.05nm) Peak ±1.0nm 70dB(resolution: 0.05nm)	Peak ±0.1nm 45dB(resolution: 0.02nm) Peak ±0.4nm 70dB(resolution: 0.05nm) Peak ±1.0nm 75dB(resolution: 0.05nm)	Peak ±0.1nm 45dB(resolution: 0.02nm) Peak ±0.4nm 70dB(resolution: 0.05nm) Peak ±1.0nm 78dB(resolution: 0.05nm)	Peak ±0.1nm 55dB (resolution: 0.01nm) Peak ±0.4nm 75dB (resolution: 0.01nm) Peak ±1.0nm 80dB (resolution: 0.01nm)	Peak ±0.5 nm 65 dB (resolution: 0.02 nm, 633 nm)	Peak ±0.4nm 45dB(resolution: 0.05 nm) Peak ±0.8nm 55dB(resolution: 0.05 nm) (1523nm, sensitivity HIGH1-3)
Level sensitivity setting	NORM_HOLD, NORM_AUTO, NORMAL, MID, HIGH1, HIGH2, HIGH3					
Stray-light suppression ratio <sup>7,10</sup>	73 dB	75dB	_____			
Wavelength reference source	Option	standard	standard		_____	Option
Sweep time <sup>1,7,9</sup>	0.3s (Sensitivity:MID, span:30nm, Resolution:0.1nm, sampling:501,2x)		0.2s (Sensitivity: MID, span: 30nm, Resolution: 0.1nm, sampling: 501,2x)	0.3s (Sensitivity:MID, span:30nm, Resolution:0.1nm, sampling:501,2x)		
Warm-up time	Minimum 1 hour					

Model	AE8600D-01	AE8600D-11	AE8600D-22	AE8700	AE8805	AE8807
<b>General Specifications</b>						
Display	10.1 inch TFT LCD touchscreen (Resolution: 1280×800)					
Interface	USB2.0 ×5, USB 3.0, VGA		USB2.0×3, USB 3.0	USB2.0 ×5, USB 3.0, VGA	USB2.0×3, USB 3.0	
	RJ45 LAN port (10M/100M/1000M), RS232-DB9					
GP-IB	Option	Standard		Option		
Trigger	_____		Standard	Option		
Data storage	Internal storage: 128GB hard-drive File types: CSV, Binary, BMP					
Operating temperature	+5 to +35 °C					
Storage temperature	-10 to +50 °C					
Power supply	AC	100-240V 1.7A 50~60Hz				
Dimensions	427 x 221 x 448 (mm)					
Weight	17kg			20kg	17kg	
Performance quadrate temperature	+18 ~ +28°C					
Safety standards	EN61010-1					
EMC(Emission)	EN IEC 61326-1, EN IEC 61326-2-1 and CISPR 16-1 series standards, Class A Group 1, IEC 61000-3-2, EN 61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-8, IEC 61000-4-4, IEC 61000-4-6, IEC 61000-4-11					

1. Horizontal axis scale: In wavelength display mode.
2. 9.5/125 μm single mode fiber (PC polishing), after warm-up of 1 hours, after alignment with a built-in wavelength reference light source or single longitudinal mode laser (wavelength: 1520 to 1560 nm, wavelength stability: ±0.01 nm or less)
3. Vertical scale: absolute value level display mode, resolution setting: 0.05 nm or more, resolution correction: OFF
4. When using 9.5/125 μm single mode fiber
5. After wavelength calibration using a built-in wavelength reference light source or single longitudinal mode laser
6. With the resolution setting of 0.05 nm, at ambient temperature of 23 ±3 °C.
7. High dynamic mode: OFF, pulse light measurement mode: OFF, resolution correction: OFF
8. 1523 nm, high dynamic mode: SWITCH, resolution correction: OFF
9. Span 100 nm or less, wavelength sampling points: 1001, averaging times: 1
10. When applying a He-Ne laser (1523 nm), resolution: 0.1 nm, 1520 nm to 1620 nm (excluding peak wavelength ± 2 nm).
11. When using the signal mode fiber with our standard Angled PC connector, it is 15 dB(Typ.) when using the PC connector
10. When applying a HeNe laser (1523 nm), resolution: 0.1 nm, 1520 nm to 1620 nm (excluding peak wavelength ± 2 nm).
11. When using the signal mode fiber with our standard APC connector, it is 15 dB(Typ.) when using the PC connector

## Portable Optical Spectrum Analyzer

### Key Features

- Wavelength Range: 600 to 1700 nm
- Wavelength resolution settings: 0.04nm
- Wide measurable level range: -75 dBm to +23 dBm
- Close-in dynamic range: 60 dB

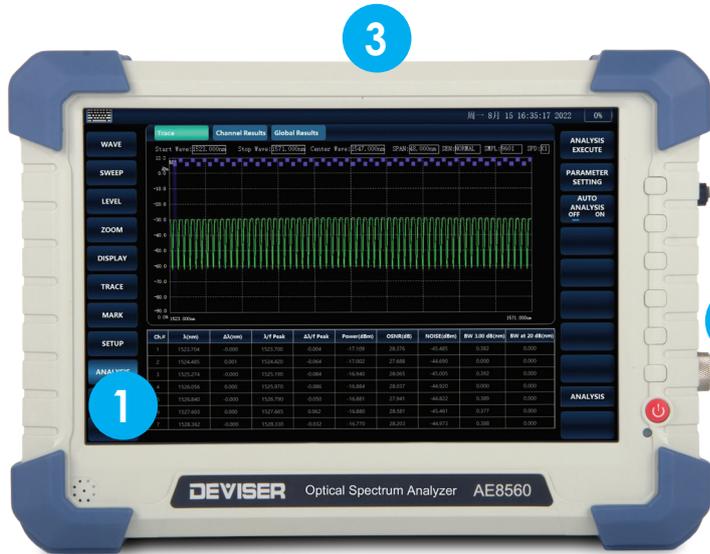


### Overview

AE8560 is a portable optical spectrum analyzer designed by Deviser photoelectric. It is small in size, light in weight, easy to operate with a touch screen, and outstanding in anti-interference, well satisfying field testing in outdoor or other harsh environments.

### Graphical Interface





## Display and Interface

### 1. High Resolution LCD Display

The 10.1-inch large-size LCD screen can clearly display detailed waveform and numerical measurement values.

### 2. Optical Interface

AE8560 adopts universal optical connectors for optical input, which can be directly coupled to the main optical interface. The optical connector is FC or SC connector.

### 3. Other Interface

USB 3.0 x 2, LAN

## Specifications

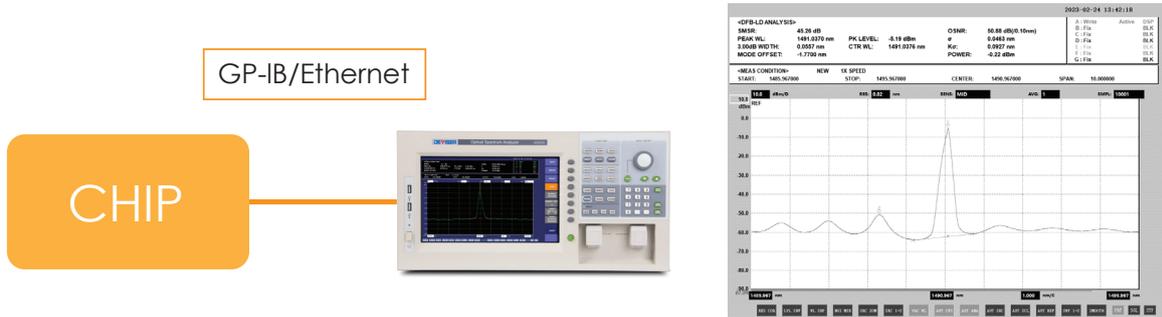
Items	Specification
Applicable fiber	SM (9.5/125 μm)
Wavelength range	600 nm to 1700 nm
Wavelength resolution setting	0.04 nm @ 1550 nm
Wavelength accuracy	1520 to 1610 nm ±0.04 nm (Calibration within 10nm range can achieve ±0.01nm wavelength accuracy) Full range ±0.1 nm
Wavelength repeatability	±0.005 nm (1min.)
Wavelength linearity	±0.01nm (1520 to 1610 nm)
Input power range	-75 dBm to +23dBm (1520nm to 1610 nm)
Level accuracy	±0.5 dB (1550 nm, input level: -10 dBm)
Light suppression ratio	±25 GHz 35 dB ±50 GHz 50 dB ±100 GHz 60 dB
I-OSNR Dynamic range	≥ 35 dB (input 1550 nm, -10 dBm)
OSNR Uncertainty(dB)	± 0.5
Channel spacing	25 to 200 GHz CWDM
ORL (dB)	≥ 35 dB
Measurement time	≤0.5s (span 30nm)
<b>General Specifications</b>	
Display	10.1 inch TFT LCD touchscreen (Resolution: 1280×800)
Interface	USB 3.0 × 2, LAN
Dimensions	94.2 x 211 x 292 (mm)
Operating temperature	0 °C to 50 °C
Weight	3.5kg
Temperature	Operating temperature: -10 °C to +50 °C Storage temperature: -20 °C to +60 °C

## Typical Applications

### Telecommunications active components test

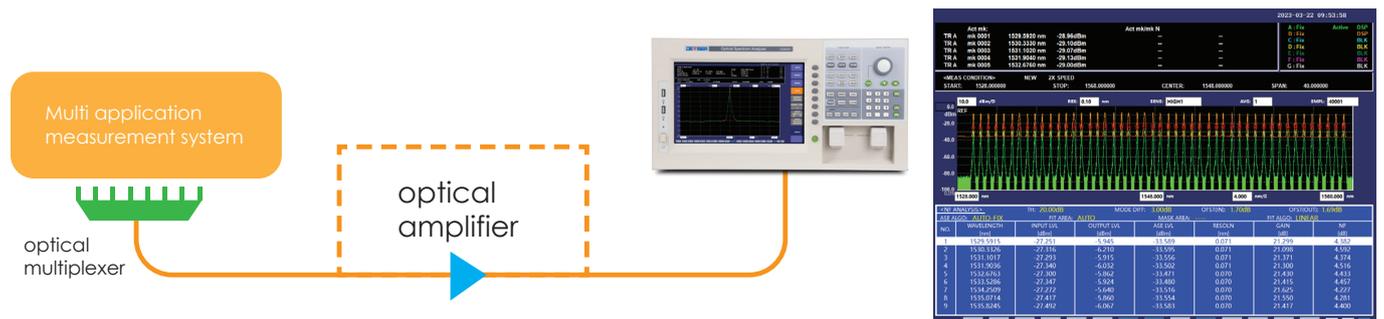
Diode laser bar and chip test

The AE8600 Series OSA is capable of measuring and displaying all key spectral performance indexes, including the center wavelength, power, ndB spectral width, and SMSR of the DUT. These are all important evaluation indexes for both optical chipset production and application.



### Optical amplifier test(EDFA)

The AE8600 Series OSA is capable of recording two high-resolution measurements of the wavelength range covered by the lasers. One trace is taken before amplification, and one after amplification. The EDFA-NF analysis function automatically detects the laser peaks, extracts the required measurement values, performs the calculations, and displays the ASE, GAIN, and NF values of the DUT in a table.



### Telecommunications passive component test

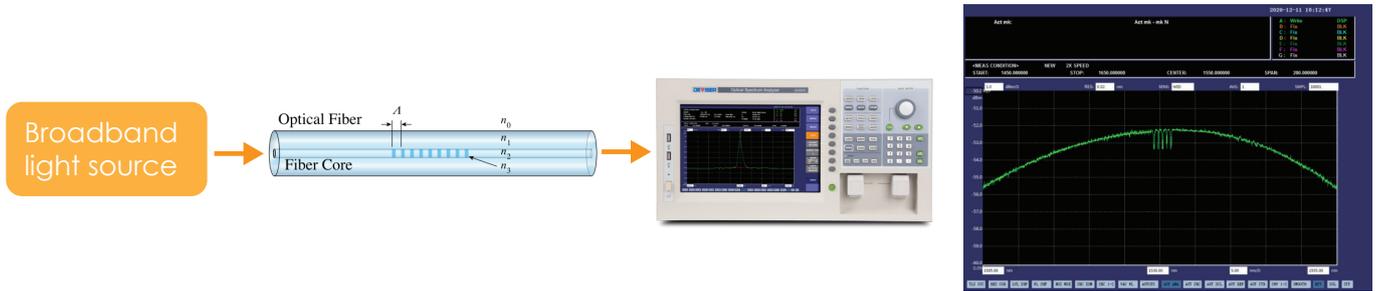
Passive component test

In conjunction with a broadband light source such as ASE, SLD, or SC light source, the OSA can simply performance evaluation of passive devices such as WDM filters. The built-in optical filter analysis function simultaneously reports peak/valley wavelength, level, crosstalk and ripple width.



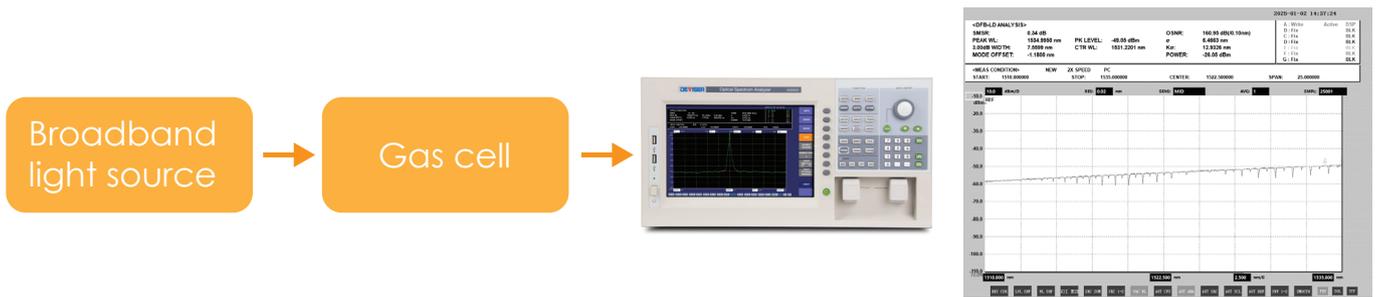
Characterization of fiber bragg grating (FBG)

A fiber bragg grating is a type of distributed Bragg reflector constructed in a short segment of optical fiber that reflects particular wavelengths of light and transmits all the others. Consequently, FBGs can function as inline optical filters to block certain wavelengths or serve as wavelength-specific reflectors. The primary application of FBGs lies in optical communication systems, where they are specifically used as notch filters. AE8600 Series can measure the reflection spectrum of the grating.



Gas detection and concentration measurements

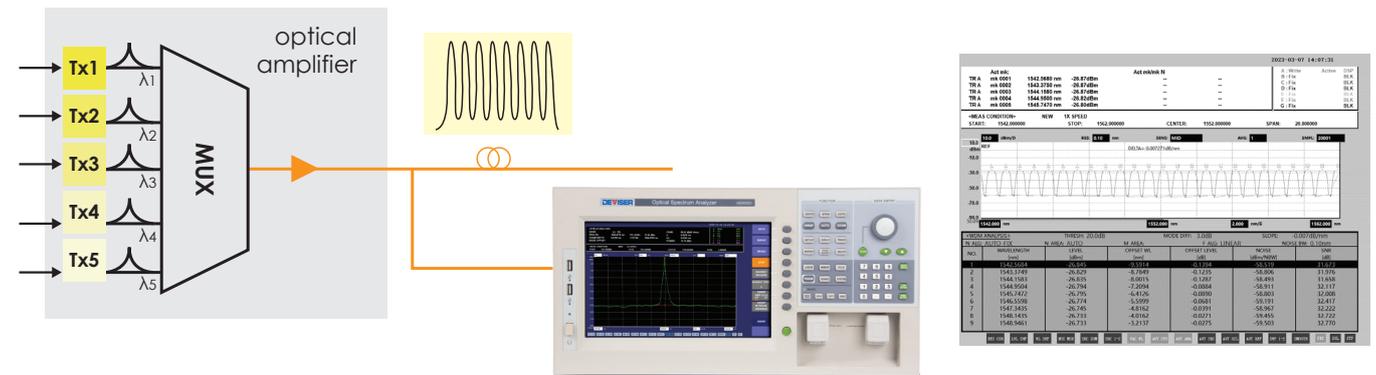
Used together with a broadband light source like super continuum (SC) or superluminescent diode (SLD), the AE8600 Series OSA can display the absorption spectrum of the gas mixture under test.



Optical communication system test

WDM OSNR test

The wide dynamic range of the AE8600 Series OSA allows accurate OSNR measurement (up to 50 GHz) of DWDM transmission systems. The built-in WDM analysis function analyzes the measured waveform and shows the peak wavelength, peak level, and OSNR of WDM signals for up to 1024 channels simultaneously.

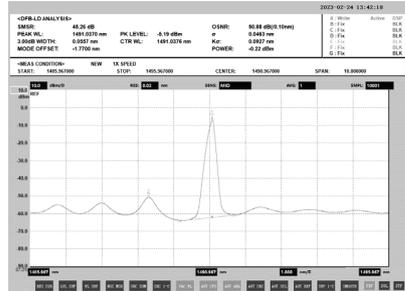


## Active components test

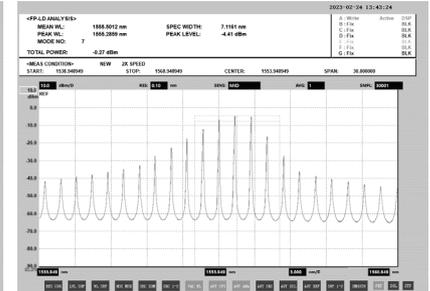
### Characterization of laser sources

The AE8600 Series OSA is capable of measuring various light sources such as DFB lasers, FP lasers, and LEDs, displaying all key performance indexes, including the center wavelength, power,  $\text{nmB}$  spectral width, SMSR, and OSNR, on a single interface.

Laser under test



DFB Spectral analysis



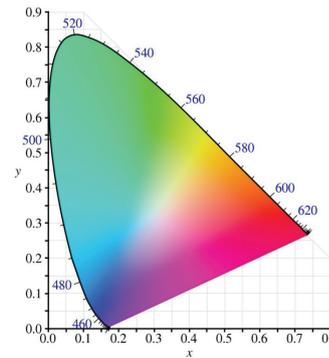
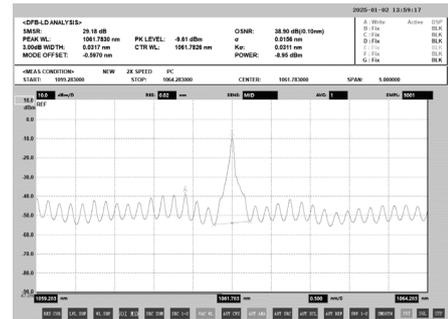
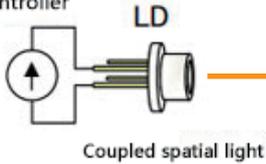
FP Spectral analysis

### Pulsed laser test

Pulse lasers are extensively used in various fields, including laser cutting and laser ranging. The AE8600 Series OSA is capable of measuring the spectra of pulses with specific widths and frequencies by using Max Hold, enabling fixed spectral characteristic analysis. Please refer to the figure shown below; it shows the spectral analysis results for a pulse laser with a 20 ns pulse width and a 10 kHz repetition frequency.

Input directly through optical fiber

electric current controller

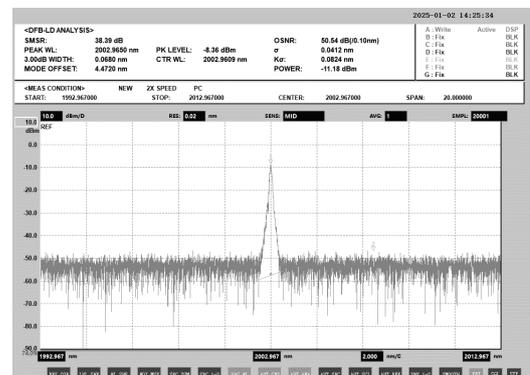


### Visible LED test

The AE8805 OSA can measure the optical spectrum of ultraviolet and visible LEDs used in signage, sensing, and other applications, such as measuring the optical spectrum of RGB laser light sources in smart glasses.

### Mid-infrared laser source test

AE8807 supports testing of mid-infrared laser sources, which are used for medical, biological applications, and material composition analysis.



## Ordering Information

Description	Part No.	Ordering no.
AE8600D-01 Optical Spectrum Analyzer	AE8600D-01	0260.8600.07
AE8600D-11 Optical Spectrum Analyzer	AE8600D-11	0260.8600.08
AE8600D-22 Optical Spectrum Analyzer	AE8600D-22	0260.8600.09
AE8700 Optical Spectrum Analyzer	AE8700	0260.8700.01
AE8805 Optical Spectrum Analyzer	AE8805	0260.8805.00
AE8807 Optical Spectrum Analyzer	AE8807	0260.8807.00
Standard 18-Month Warranty (Laser, APD, brushless motor and Accessories one-year warranty), AC power cord adapted to customer location, Certificate of Calibration and Compliance and User Manual		
Options		
SC Conector Adapter for Optical Input	AE8600-002	6260.0400.04
Built-in Calibraton Light Source(default with FC/APC Connector Adapter, AE8600-01, AE8807)	AE8600-200	2260.8600.00
GPIB remote control (AE8600-01, AE8700, AE8805, AE8807)	AE8600-700	6260.0400.05
Description	Part No.	Ordering no.
AE8560 Portable Optical Spectrum Analyzer	AE8560	0260.8560.01
Standard 18-Month Warranty (Laser, APD, brushless motor, LCD, Battery and Accessories one-year warranty), AC power cord adapted to customer location, Certificate of Calibration and Compliance and User Manual		
Options		
SC Conector Adapter for Optical Input	AE8600-002	6260.0400.04



**DEVISER**<sup>®</sup>

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